Fig. 1

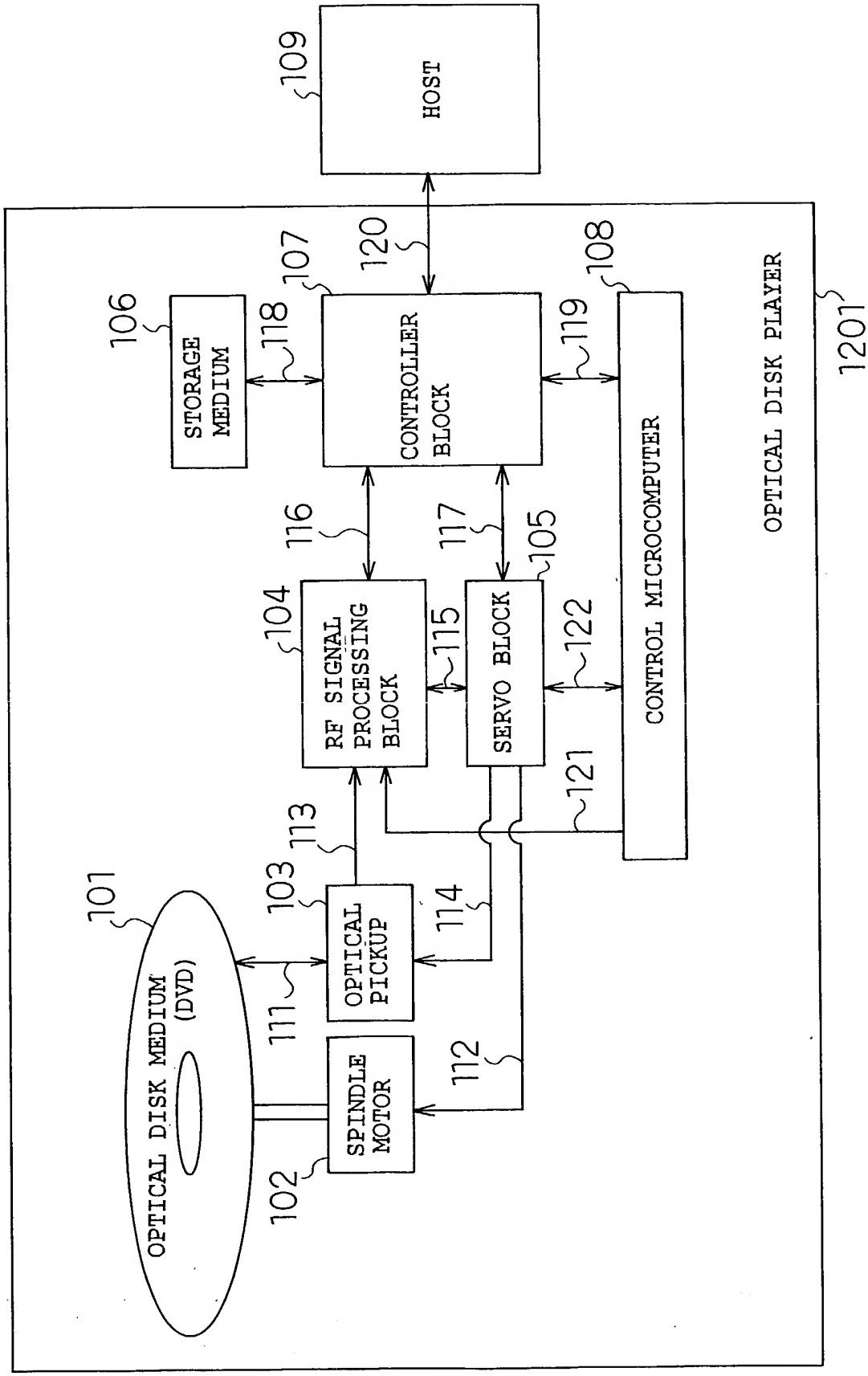
HOST
109
120
OPTICAL DISK PLAYER
1201
STORAGE MEDIUM
106
118
CONTROLLER BLOCK
107
119
CONTROL MICROCOMPUTER
108
116
117
RF SIGNAL PROCESSING BLOCK
104
115
SERVO BLOCK
105
122
121
113
OPTICAL PICKUP
103
114
111
SPINDLE MOTOR
102
112
OPTICAL DISK MEDIUM (DVD)
101

Fig. 2

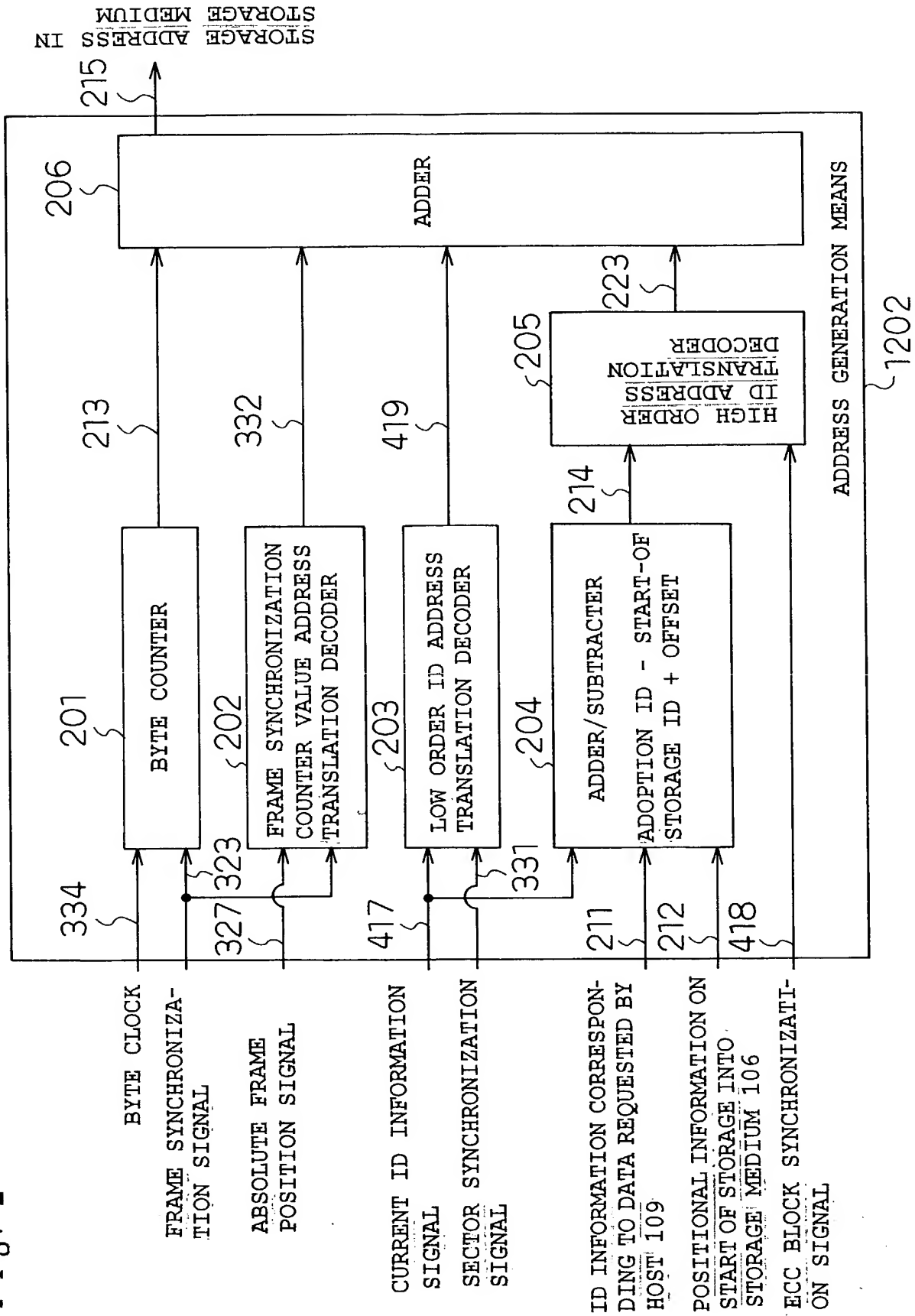
STORAGE ADDRESS IN STORAGE MEDIUM
215
206
ADDER
213
332
419
205
223
HIGH ORDER ID ADDRESS TRANSLATION DECODER
214
ADDRESS GENERATION MEANS
1202
201
BYTE COUNTER
202
FRAME SYNCHRONIZATION COUNTER VALUE ADDRESS TRANSLATION DECODER
203
LOW ORDER ID ADDRESS TRANSLATION DECODER
204
ADDER/SUBTRACTER
ADOPTION ID - START-OF STORAGE ID + OFFSET
334
327
323
417
331
211
212
418
BYTE CLOCK
FRAME SYNCHRONIZATION SIGNAL
ABSOLUTE FRAME POSITION SIGNAL
CURRENT ID INFORMATION SIGNAL
SECTOR SYNCHRONIZATION SIGNAL
ID INFORMATION CORRESPONDING TO DATA REQUESTED BY HOST 109
POSITIONAL INFORMATION ON START OF STORAGE INTO STORAGE MEDIUM 106
ECC BLOCK SYNCHRONIZATION SIGNAL

Fig. 3

CHANNEL DATA
321
CHANNEL DATA PARALLELIZATION BLOCK
301
322
FRAME SYNCHRONIZATION SIGNAL GENERATION BLOCK
302
323
FRAME SYNCHRONIZATION CODE ENCODING BLOCK
303
324
DATA DEMODULATION BLOCK
304
SECTOR SYNCHRONIZATION DETECTION BLOCK
305
325
SECTOR SYNCHRONIZATION INTERPOLATION BLOCK
306
326
FRAME SYNCHRONIZATION COUNTER BLOCK
307
327
FRAME POSITION DETECTION BLOCK
308
328
FRAME POSITION RELIABILITY DETERMINATION BLOCK
310
329
SECTOR SYNCHRONIZATION SIGNAL GENERATION BLOCK
309
330
FRAME SYNCHRONIZATION COUNTER VALUE ADDRESS TRANSLATION BLOCK
311
331
FRAME ADDRESS SECTOR SYNCHRONIZATION SIGNAL
332
DEMODULATED DATA
333
BYTE CLOCK
334
DEMODULATION PROCESSING MEANS
1203

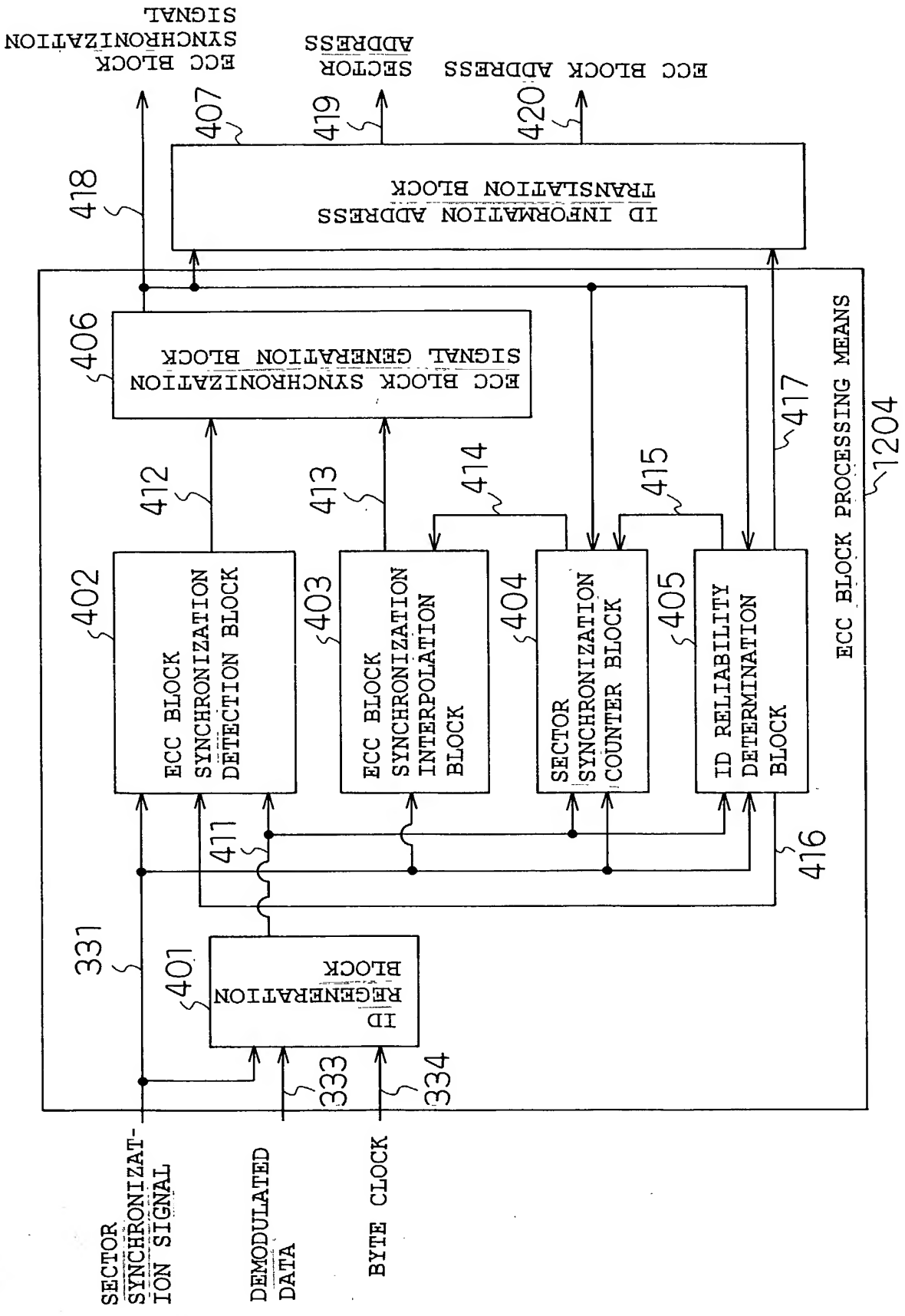
ECC BLOCK SYNCHRONIZATION SIGNAL
SECTOR ADDRESS
ECC BLOCK ADDRESS
407
419
420
418
ID INFORMATION ADDRESS TRANSLATION BLOCK
406
ECC BLOCK SYNCHRONIZATION SIGNAL GENERATION BLOCK
417
ECC BLOCK PROCESSING MEANS
1204
412
413
414
415
402
ECC BLOCK SYNCHRONIZATION DETECTION BLOCK
403
ECC BLOCK SYNCHRONIZATION INTERPOLATION BLOCK
404
SECTOR SYNCHRONIZATION COUNTER BLOCK
405
ID RELIABILITY DETERMINATION BLOCK
411
416
331
401
ID REGENERATION BLOCK
333
334
SECTOR SYNCHRONIZATION SIGNAL
DEMODULATED DATA
BYTE CLOCK

Fig. 4

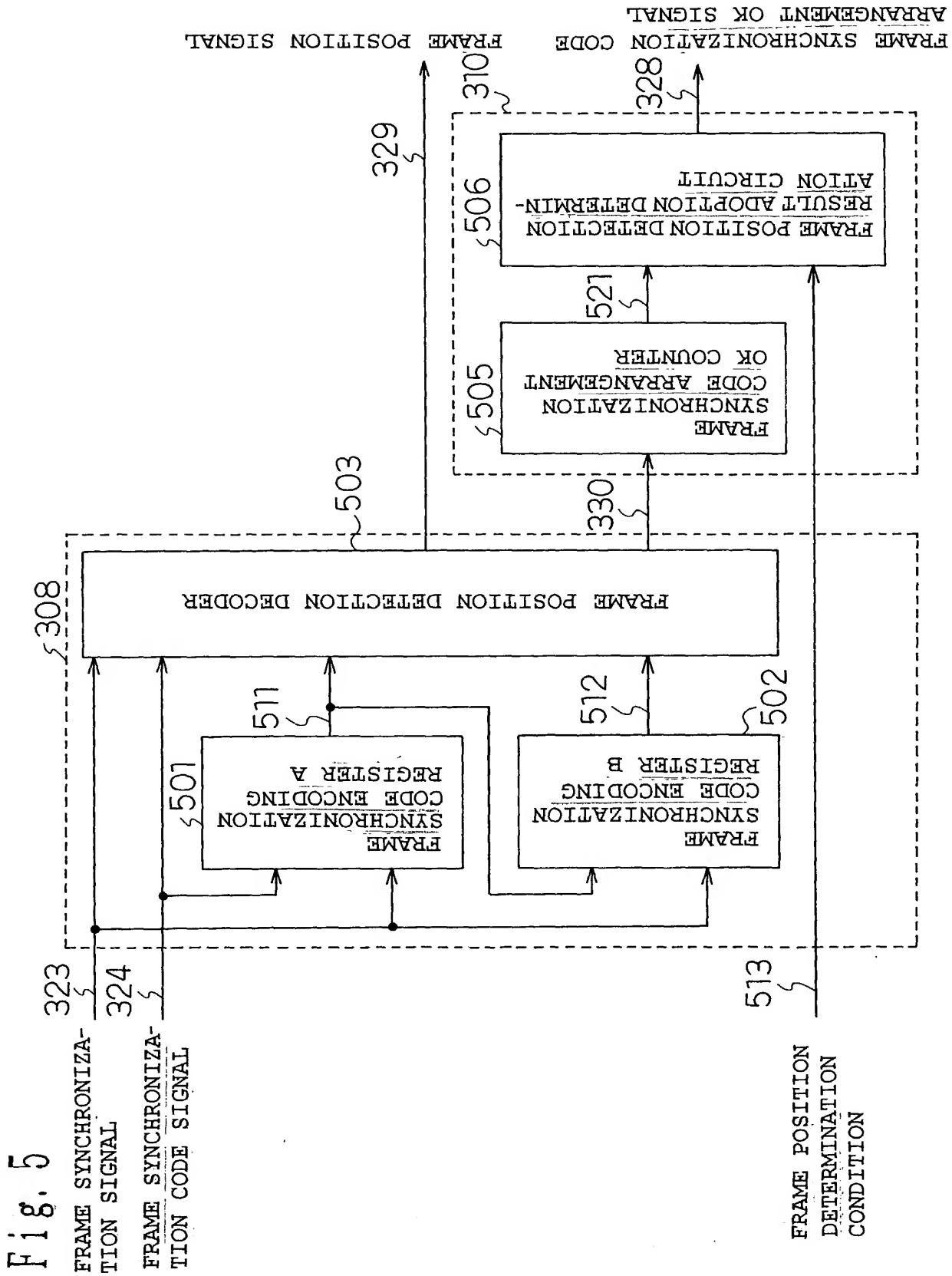
FRAME SYNCHRONIZATION CODE ARRANGEMENT OK SIGNAL
FRAME POSITION SIGNAL
328
310
329
506
FRAME POSITION DETECTION RESULT ADOPTION DETERMINATION CIRCUIT
521
505
FRAME SYNCHRONIZATION CODE ARRANGEMENT OK COUNTER
503
330
308
FRAME POSITION DETECTION DECODER
511
512
502
501
FRAME SYNCHRONIZATION CODE ENCODING REGISTER A
FRAME SYNCHRONIZATION CODE ENCODING REGISTER B
323
324
513
FRAME SYNCHRONIZATION SIGNAL
FRAME SYNCHRONIZATION CODE SIGNAL
FRAME POSITION DETERMINATION CONDITION

Fig. 5

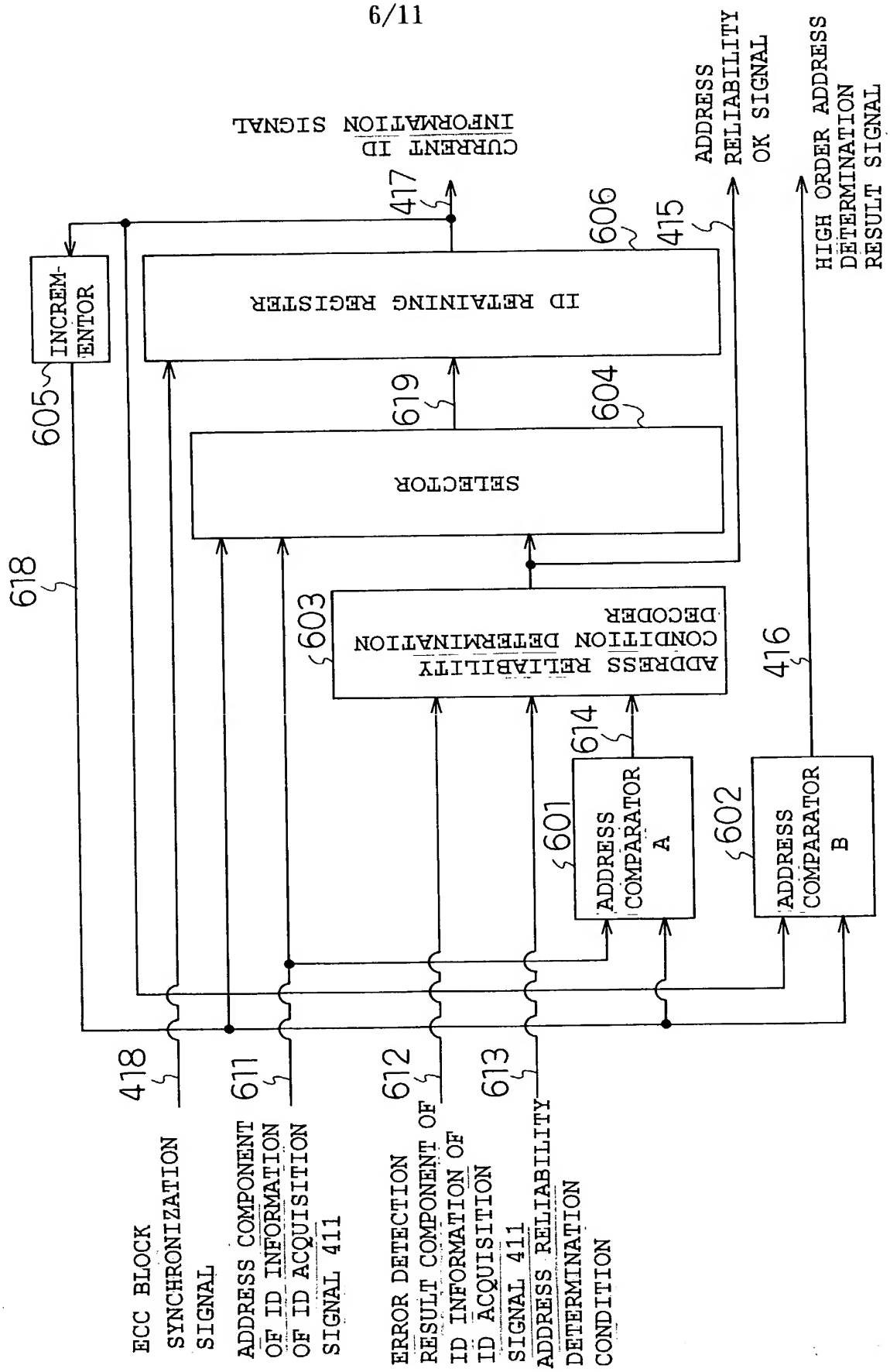
ECC BLOCK SYNCHRONIZATION SIGNAL
418
ADDRESS COMPONENT OF ID INFORMATION OF ID ACQUISITION SIGNAL 411
611
ERROR DETECTION RESULT COMPONENT OF ID INFORMATION OF ID ACQUISITION SIGNAL 411
612
ADDRESS RELIABILITY DETERMINATION CONDITION
613
ADDRESS COMPARATOR A
601
ADDRESS COMPARATOR B
602
614
ADDRESS RELIABILITY DECODER
603
416
HIGH ORDER ADDRESS DETERMINATION RESULT SIGNAL
ADDRESS RELIABILITY OK SIGNAL
415
606
417
CURRENT ID INFORMATION SIGNAL
SELECTOR
604
619
ID RETAINING REGISTER
INCREM-ENTOR
605
618

Fig. 6

Fig. 7

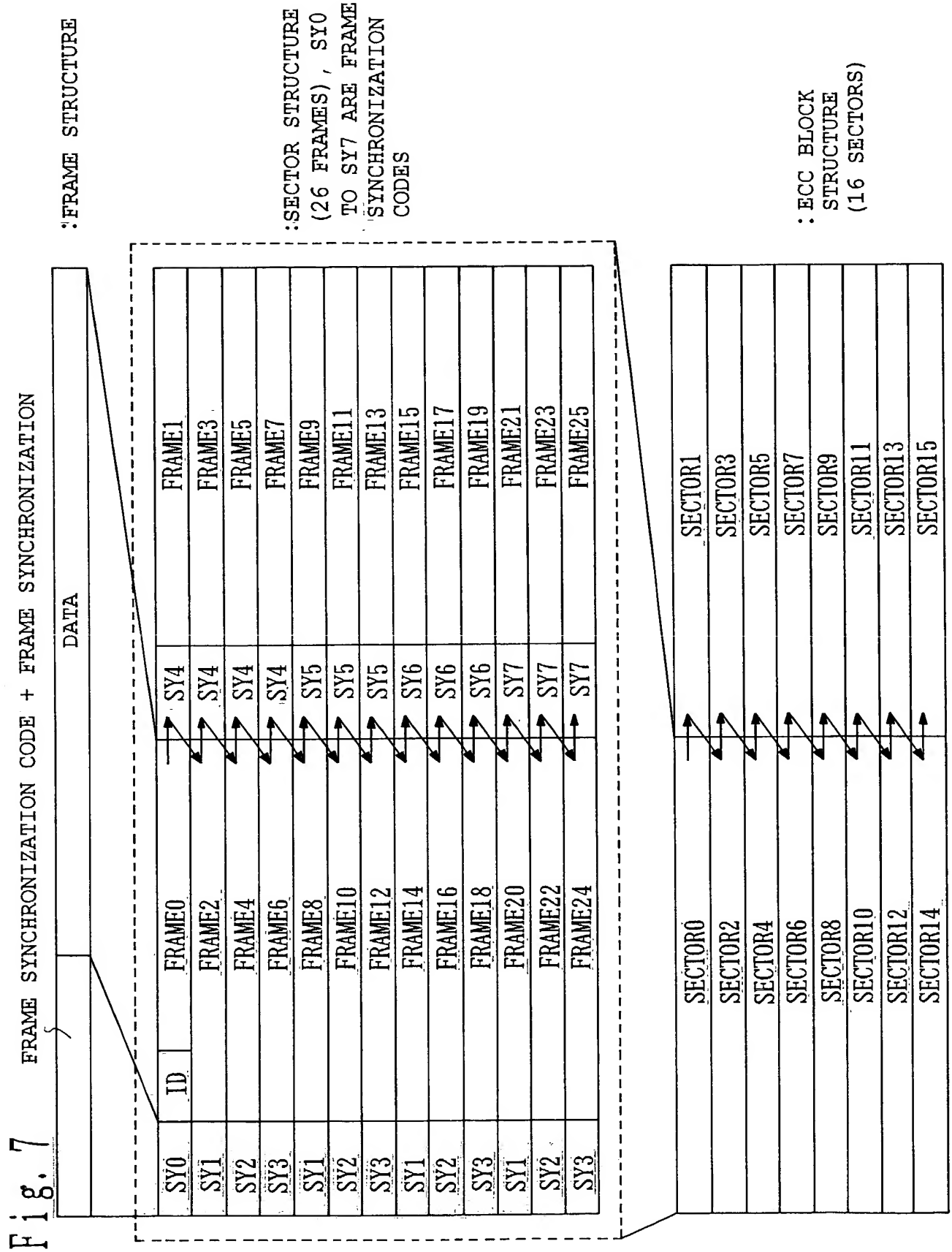
FRAME SYNCHRONIZATION CODE + FRAME SYNCHRONIZATION
DATA
: FRAME STRUCTURE
: SECTOR STRUCTURE (26 FRAMES), SY0 TO SY7 ARE FRAME SYNCHRONIZATION CODES
: ECC BLOCK STRUCTURE (16 SECTORS)
SY0 ID FRAME0 SY4 FRAME1
SY1 FRAME2 SY4 FRAME3
SY2 FRAME4 SY4 FRAME5
SY3 FRAME6 SY4 FRAME7
SY1 FRAME8 SY5 FRAME9
SY2 FRAME10 SY5 FRAME11
SY3 FRAME12 SY5 FRAME13
SY1 FRAME14 SY6 FRAME15
SY2 FRAME16 SY6 FRAME17
SY3 FRAME18 SY6 FRAME19
SY1 FRAME20 SY7 FRAME21
SY2 FRAME22 SY7 FRAME23
SY3 FRAME24 SY7 FRAME25
SECTOR0 SECTOR1
SECTOR2 SECTOR3
SECTOR4 SECTOR5
SECTOR6 SECTOR7
SECTOR8 SECTOR9
SECTOR10 SECTOR11
SECTOR12 SECTOR13
SECTOR14 SECTOR15

Fig. 8

FRAME SYNCHRONIZATION CODE	FRAME SYNCHRONIZATION CODE SIGNAL
SY0	00000001b
SY1	00000010b
SY2	00000100b
SY3	00001000b
SY4	00010000b
SY5	00100000b
SY6	01000000b
SY7	10000000b

Fig. 9 (a)

RELATIVE FRAME POSITION SIGNAL (Dec)	FRAME ADDRESS (Hex)
0	000
1	080
2	100
3	180
4	200
5	280
6	300
7	380
8	400
9	480
10	500
11	580
12	600
13	680
14	700
15	780
16	800
17	880
18	900
19	980
20	A00
21	A80
22	B00
23	B80
24	C00
25	C80

Fig. 9 (b)

LOW ORDER FOUR BITS OF CURRENT ID INFORMATION SIGNAL (Dec)	SECTOR ADDRESS (Hex)
0	0000
1	0D00
2	1A00
3	2700
4	3400
5	4100
6	4E00
7	5B00
8	6800
9	7500
10	8200
11	8F00
12	9C00
13	A900
14	B600
15	C300

Fig. 9 (c)

RELATIVE ECC BLOCK ADDRESS (Dec)	ECC BLOCK ADDRESS (Hex)
0	00000
1	0D000
2	1A000
3	27000
4	34000

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Fig. 10 (a)

NTH SECTOR	N+1TH SECTOR	DEFECTIVE SECTOR	N+2TH SECTOR	N+3TH SECTOR	...

Fig. 10 (b)

NTH ECC BLOCK	N+1TH ECC BLOCK	DEFECTIVE SECTOR	N+3TH ECC BLOCK	N+4TH ECC BLOCK	...

EP04750207 10/10/2007

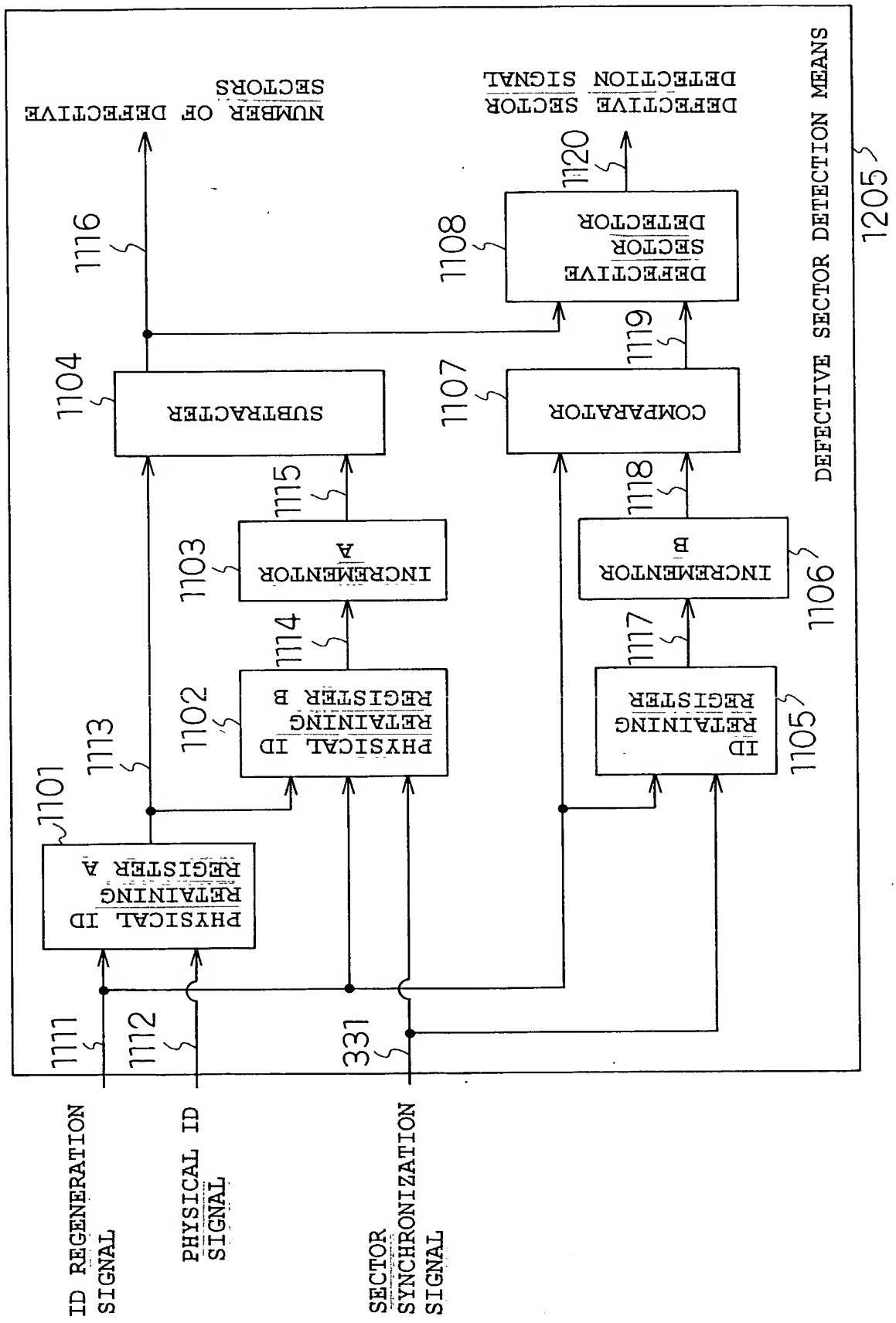
DEFECTIVE SECTOR DETECTION MEANS
1205
PHYSICAL ID RETAINING REGISTER A
1101
PHYSICAL ID RETAINING REGISTER B
1102
ID RETAINING REGISTER
1105
INCREMENTOR A
1103
INCREMENTOR B
1106
SUBTRACTER
1104
COMPARATOR
1107
DEFECTIVE SECTOR DETECTOR
1108
1111
1112
331
1113
1114
1115
1116
1117
1118
1119
1120
ID REGENERATION SIGNAL
PHYSICAL ID SIGNAL
SECTOR SYNCHRONIZATION SIGNAL
NUMBER OF DEFECTIVE SECTORS
DEFECTIVE SECTOR DETECTION SIGNAL

Fig. 11